THE INDONESIAN JOURNAL OF BUSINESS ADMINISTRATION
Vol. 2, No. 4, 2013:444-454

DECISION ANALYSIS OF VESSEL RE-FLAGGING: CASE STUDY OF PT. HALLIN MARINE INDONESIA

Renni Puri Wardianthi and Yos Sunitiyoso
School of Business and Management
Institute Teknologi Bandung
renni.puri@sbm-itb.ac.id; rennipuri@gmail.com

Abstract- *The underwater inspection services performed by the subsea contractor to support offshore operations in oil and gas industry which is currently depends on foreign companies due to the resources and equipment were not available in Indonesia. Lack of equipment and resources domestically contrary to the need the underwater inspection skills and dominated by foreign companies and foreign workers the government issued a policy to discontinue the use of foreign flag vessels including foreign workers who work on-board the vessel in Indonesia in accordance with the principle of cabotage to optimize local resources which will implement in early 2013 for several types of vessels operating in Indonesian waters. A contribution towards to support the Government regulations tailored to the needs of the market for diving support vessels to do the underwater services, Hallin intends to revamp its vessel into the Indonesian flagged vessel. This paper will determine the best option which vessel suitable to be re-flagged in-line with the cabotage principle as the bottom regulation for Indonesian water transportation regulation. The analysis of vessel determination will be conducted using a SMART analysis and Basic Patterns of Thinking in the Organization Context such as Situation Appraisal, Problem Analysis, Decision Analysis and Potential Problem Analysis get a suitable vessel to be re-flagged tailored with the questionnaires given to the clients, it is expected to receive a feedback and determining the type of a suitable vessel, the process of implementation and application to re-flagged.*

Keywords: Decision Analysis, Cabotage Policy, Diving Support Vessel, SMART Analysis, Problem Analysis, Situational Analysis and Potential Problem Analysis.

1. Introduction

Superior Energy Services, a Houston based headquarter is the leading provider of specialized oilfield services and equipment focusing on serving the production· related needs of oil and gas companies around the globe. Superior's operations are organized into three divisions, including rental tools, well intervention and marine services. In Asia, Hallin Marine Subsea International PLC, headquarter in Singapore has represented the Superior Energy Services under marine services division, 7 (seven) branches worldwide, including Indonesia known as PT. Hallin Marine Indonesia, was established in Jakarta, on September 2005, to support oil and gas operation in Indonesian waters supported with equipment and tools, such as: Dynamic Positioning 2 Diving Support Vessel and Subsea Operation Vessel (DP2 DSV/SOV) is a vessel that supports the professional diving projects including professional divers used at oil field or production places in open water.

The project also will emphasize the benefit for Hallin as the main issue need to be addressed and achieve a particular purpose of the company as below:

1. What are the criteria of the vessel to be re-flagged?
2. Which vessel chosen to be re-flagged?

2. Business Issue Exploration

Indonesia has a plenty of underwater facilities including platform and thousand kilometers of underwater pipeline in offshore, most of the platform and pipeline has been set-up more than 20 years. As the main requirement, those platforms and pipelines must have a periodically checking to ensure no corrosion or leaking on an underwater pipeline as the preventive action for waste pollution happen over the sea which also affected to degrading of oil production capacity.

The ability of a diving support vessel with dynamic positioning 2 to move from place to place during the operation is beneficial in term of time efficiency, no mooring anchorage needed and cost saver rather that other types of diving vessel which does not require any assisting tug boat to support the movement of the vessel. The government through the Ministry of Transportation Republik Indonesia released a regulation which is known as “Inpres No. 5 Tahun 2005” on the empowerment of the national sea transportation industry as a legal application of the principle of cabotage in 2005 then lately followed “UU No. 17 Tahun 2008” and affirms the cabotage principle earlier as “INPRES No. 5 Tahun 2005.

A. Business Issues

According to the government regulation No. 22 year 2011 regarding to the sea transportation on article 2, has stated that:

“Foreign vessel can perform other activities that do not include activities of transporting passenger / or goods in the domestic sea freight activities in Indonesian waters, as long as the Indonesian flagged vessels are not yet available or not enough available”.

B. Conceptual Framework

The programs to increase the local content aspect reflect to procurement policy based on procurement working system manual – PTK007/Rev.2/I/2011 has stated to maximizing local component for upstream to downstream in oil and gas industries within the country.

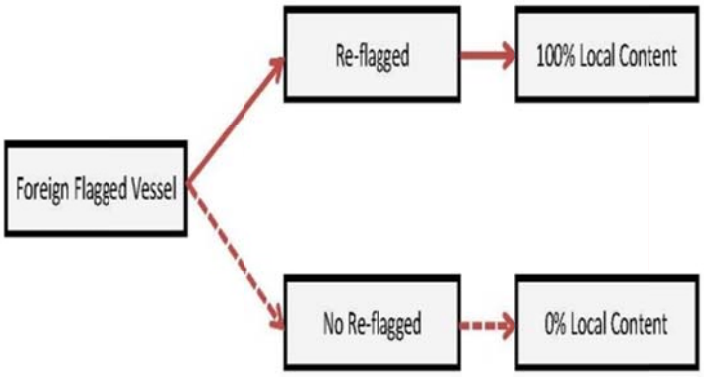


Figure 1. Local Content Measurement for Vessel

The following conceptual framework is mapping a selective reference of the vessel.

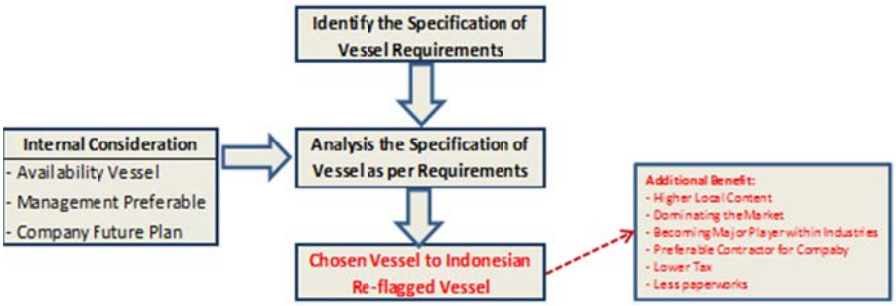


Figure 2. Conceptual Framework

Based on the conceptual framework, to identify the suitable vessel should consider the internal factors such as availability vessel, management preferable and company future plan.

C. Method of Data Collection and Analysis

To answer the 2 (two) problem statement, the researcher will be used a quantitative method research which answered throughout the questionnaires collected from external and internal parties. The external parties will receive from the existing client based on common requirements for vessel specification which required in offshore project, while the internal parties are conducted through both verbal discussion and questionnaires from the board of management and project team.

D. Analysis of Business Situation

The application of the cabotage principle for domestic sea freight refer to regulation number 17 year 2008; Presidential Decree 22/2011 and Ministerial Degree number 48 year 2011, all transporting passengers activities and/or sea transport of good in domestic after May 7th, 2011 are compulsory using Indonesian flagged vessels. While foreign vessel can perform other activities Indonesian waters along the Indonesian-flagged vessels are not yet available or not enough available and received permits from the Ministry of Communications, all procedures and requirements for granting the permission set by the Minister.

Road map to local content as in line with the policies and target for oil and gas in Indonesia, the government determines the baseline for the long-term target in the year 2025 as follows:

- Maintain oil and gas production at a rate of 1 million BOPD
- 50% concession by the National
- Security of fuel supply and distribution of gas for domestic and Industrial
- 91% local content (goods and services)
- 99% of national experts
- Guarantee the safety of oil and gas, zero accidents, zero failure, and achievement of zero flares, and zero waste

E. Root of Problem

The main issue in this research is to determine which vessels most suitable concerning several criteria and aspects to implement the cabotage by re-flagging its vessel into the Indonesian flag vessel. This research decision will exercise based on quantitative aspects from internal and external source's perspective only but also considering other variables that might affect.

3. Business Solution

A. Business Solution

Referring to the Procurement Policy Based on Procurement Working System Manual PTK007/Rev. 2/I/2011 as the main guidance for procurement and tendering system in Indonesia from BPMIGAS to support the maximum usage of local content in oil and gas operation. Upon the implementation of

cabotage regulation, the foreign flagged vessel would not be allowed to operate in Indonesian waters.

a. *The Re-flagged Vessel's Advantages*
   Using an Indonesian flagged vessel would increase the local content above the minimum requirement and the opportunity to be a preferred Bidder. Moreover, Hallin could also become a major player due to the limited contractor with sufficient technology and equipment within the Indonesian industry. From a financial perspective, the utilization of expatriate manpower on-board the vessel should be restricted to specified expertise can reduce the cost of manpower.
b. *The Re-flagged Vessel's Disadvantages*
   The foreign flagged vessel will not be considered for tax incentive benefit from the government and will have to pay higher tax comparable to the Indonesian flagged vessel.

B. The Determination of Business Solution

To determine business solutions, research has been conducted by distributing questionnaires to the various parties associated with the industry.

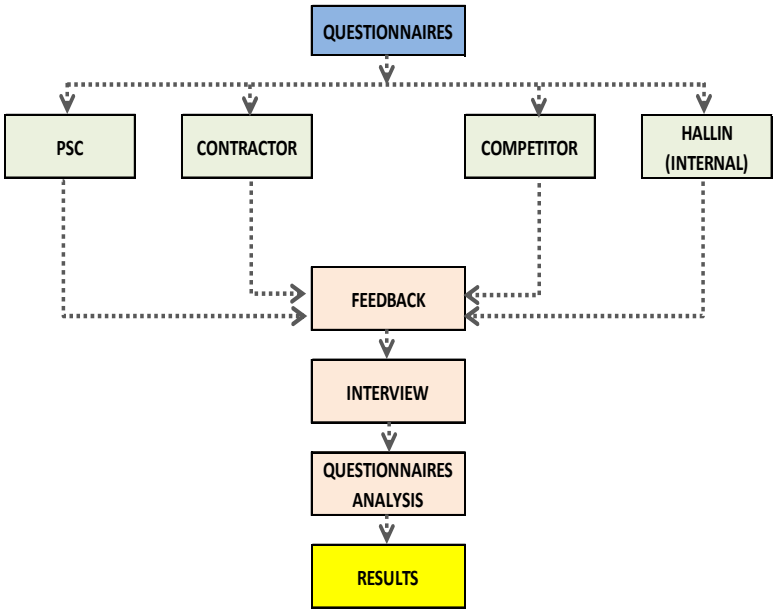


Figure 3. Questionnaires Survey Process

To identify the attributes which are relevant to distinguish its vessel differentiation will divide into 2 (two) criteria such as customer's perception and vessel specification. Below is the description of the criteria and vessel specification to represent the underwater services requirement:

a. *Customer's Perception*
   Refer to general perspectives mainly required from Oil and Gas Company., The Customer's Perception in this section is the main aspect to determine generally suitable vessel to perform in offshore area such as:
   - Cost Efficiency
   - Time Efficiency
   - IMCA Compliance
   - Dynamic Positioning 2

b. *Vessel Specification*
   The vessel specification is the details section determines fully specified to the technical related to the capability of vessel to do underwater services, such as:

- Minimum 2500hph
- Dual Classification
- Deck Space >500m2
- Built-in Diving Equipment
- Newly Build
- Satellite Communication incl. Internet

Respondent profile was taken from 4 (four) biggest client from PSC whereas Hallin awarded a million dollar contract, such as Pertamina Hulu Energy ONWJ; ConocoPhillips Indonesia; Total E&P Indonesie and SANTOS. The Oil and Gas Contractor mainly focussed in Engineering, Procurement, Construction, Commissioning and Installation (EPCCI) in offshore area such as TIMAS Suplindo, Rekayasa Industri. The Competitor is Bibby Offshore. Hallin Marine Subsea International Ltd. represent by Chief Operating Officer.

Table 1. Respondent Profile

Respondent Profile		
No.	Position	Company
1	Respondent 1	ConocoPhillips Indonesia Inc.
2	Respondent 2	Total E&P Indonesie
3	Respondent 3	Pertamina Hulu Energi ONWJ
4	Respondent 4	Santos Pty., Ltd.
5	Respondent 5	PT. Rekayasa Industri
6	Respondent 6	PT. Timas Suplindo
7	Respondent 7	Hallin Marine Subsea Int'l. Plc.
8	Respondent 8	Bibby Offshore Limited

C. Execution of Data Collection

The respondent should assign values for each attribute in Customer's Perception and vessel specification to measure the preference or importance 1 (one) to 10 (ten), from not preferable to very preferable of the vessel owned by Hallin.

a. Customer's Perception Attributes

The total assigned values given by respondents in the questionnaires will be calculated to generate the average for each attribute to measure how well vessel customer's perception suitable over all the attributes. The maximum value is 9.75 and the minimum value is 8.63 in customer's perception attribute.

Table 2. Questionnaires Calculation for Customer's Perception

Company	Customer's Perception			
	Dynamic Positioning 2	IMCA Compliance	Cost Efficiency	Time Efficiency
Respondent 1	10	10	9	9
Respondent 2	10	10	10	10
Respondent 3	8	10	10	10
Respondent 4	8	7	10	10
Respondent 5	7	9	10	10
Respondent 6	6	6	9	9
Respondent 7	10	10	10	10
Respondent 8	10	10	10	6
AVERAGE	**8.63**	**9.00**	**9.75**	**9.25**

b. Vessel Specification Attributes

The highest value will be 10 (ten) and the lowest value is 1 (one) from very preferable to not preferable. The maximum value is 8.75 and the minimum value is 5.75 for vessel specification attribute.

Table 3. Questionnaires Calculation for Vessel Specification

Company	Vessel Specification							
	Min 2500hph	Dual Class	Deck Space	Diving Equipment	Newly Build	Satellite Comm.	Working Office	Sufficient Accom.
Respondent 1	8	10	9	8	10	8	8	9
Respondent 2	10	10	10	10	1	10	10	10
Respondent 3	9	7	10	7	7	10	10	10
Respondent 4	9	6	10	8	7	9	8	9
Respondent 5	7	8	8	9	8	10	8	9
Respondent 6	8	9	7	5	5	6	8	8
Respondent 7	10	1	7	7	4	10	8	10
Respondent 8	7	2	6	3	4	6	6	5
AVERAGE	**8.50**	**6.63**	**8.38**	**7.13**	**5.75**	**8.63**	**8.25**	**8.75**

D. Which vessel chosen to be re-flagged?

Using a Diving Subsea Vessel with Dynamic Positioning 2 is tremendously beneficial followed with Cost and Time Efficiency while the IMCA Compliance would be mandatory if the vessel and Contractor is IMCA member. The minimum 2500horse power of engine is suitable for a vessel to operate, the fuel can be considered as efficient while the minimum 500 (five hundred) meters of deck space were a beneficial. The availability of build-in diving equipment is also can be considered as an efficient, since it might save an extra cost for chartering other vessel as storage to put the equipment and tools including the diving equipment. The dual classification were not main concerned for the Company during the operation in Indonesia as long as the vessel is compliant with international standard in-terms of safety same as the ages of the vessel, the clients might accept the vessel's minimum 10 (ten) years since it was built and/or 20 (twenty) years subject to refurbishment.

D. Analysis of Business Solution

As the total vessel owned by Hallin is 6 units, the highest weighting will be 6 and by giving 1 to 6 from not suitable to suitable. The highest value obtained in the vessel will determine the type of vessel in accordance with the market needs by calculating the value of the weight and ranking on the criteria for each vessel.

Table 4. Questionnaires Calculation for Customer's Perception

Criteria	Weight		Carlisle		Ullswater		Windermere		Penrith		Kendal		Derwent	
Dynamic Positioning 2	8.63	23.55%	6	51.75	6	51.75	6	51.75	6	51.75	6	51.75	6	51.75
IMCA Compliance	9.00	24.57%	6	54.00	6	54.00	6	54.00	5	45.00	6	54.00	6	54.00
Cost Efficiency	9.75	26.62%	6	58.50	3	29.25	6	58.50	6	58.50	5	48.75	1	9.75
Time Efficiency	9.25	25.26%	4	37.00	5	46.25	6	55.50	4	37.00	5	46.25	4	37.00
	36.63	100.00%		201.25		181.25		219.75		192.25		200.75		152.50

The customer's perception was the general requirements as a single package in every vessel. Therefore, 6 vessels owned by Hallin able to meet the requirement, the total point is an average, Derwent has the lowest point. However, according above table of criteria, there is 3 vessels meet the requirements, Carlisle, Windermere and Kendal, represent the suitable vessel as per the customer's perception.

Table 5.Questionnaires Calculation for Vessel Specification

Vessel Specification	Weight		Carlisle		Ullswater		Windermere		Penrith		Kendal		Derwent	
Minimum 2500hph	8.50	13.71%	6	51.00	6	51.00	6	51.00	6	51.00	6	36.00	6	51.00
Dual Classification	6.63	10.69%	1	6.63	1	6.63	1	6.63	1	6.63	1	6.63	1	6.63
Deck Space > 500m	8.38	13.51%	6	50.25	6	50.25	6	50.25	2	16.75	6	50.25	6	50.25
Build in Diving Equipment	7.13	11.49%	1	7.13	6	42.75	6	42.75	1	7.13	3	21.38	1	7.13
New Build > 2006	5.75	9.27%	1	5.75	6	34.50	6	34.50	2	11.50	6	34.50	6	34.50
Satellite Communication incl. Internet	8.63	13.91%	6	51.75	6	51.75	6	51.75	6	51.75	6	51.75	6	51.75
Availability of Working Office	8.25	13.31%	6	49.50	6	49.50	6	49.50	6	49.50	6	49.50	6	49.50
Sufficient Accomodation > 60 PoB	8.75	14.11%	6	52.50	6	52.50	6	52.50	1	8.75	6	52.50	6	52.50
	62.00	100.00%		274.50		338.88		338.88		203.00		302.50		303.25

Refer to vessel classification, the lowest point is 203.00 for Penrith, while Carlisle achieves 274.50, Kendal achieve 302.50 and, Derwent achieve 303.25. Windermere and Ullswater achieve the highest point with 338.88. Below the table, as a matrix for vessel classification owned by Hallin as required by the market:

Table 6. Matrix of Vessel Specification

Name of Vessel	Sufficient Accomodation > 60 PoB	Satellite Communication incl. Internet	Minimum 2500hph	Deck Space > 500m	Availability of Working Office	Build in Diving Equipment	Dual Classification	New Build > 2008
	1	2	3	4	5	6	7	8
Carlisle	126	YES	2x2735bhp	700	Available	-	ABS	2006
Ullswater	**120**	**YES**	**2x2760bhp**	**700**	**Available**	**SAT/ADS**	**ABS**	**2007**
Penrith	52	YES	2x3982bhp	447	NA	AHTS	ABS	2007
Windermere	**120**	**YES**	**2x3352bhp**	**700**	**Available**	**SAT/ADS**	**ABS**	**2010**
Kendal	60	YES	2x2500bhp	580	NA	ADS/ROV	ABS	2011
Derwent	152	YES	6x3754bhp	1300	Available	ADS/SAT/ROV	ABS	2013

From the above table, the overall vessel specification which does not have the built-in diving equipment and build in 2006 is Carlisle. Penrith does not have sufficient accommodation only 52 people on-board, deck space less than 447m and without working office. Kendal only has 60 people on-board for accommodation, less 2500hph, less than 580m of deck space without availability working office. While Derwent, the vessel specification was beyond the other vessel, it can be considered as a high-technology with Dynamic Positioning 3 the latest system, 6x3754hph engine power, which is not efficient and suitable for working in shallow water, suitable for deep-water project and still under out-fitting in the yard, will be ready to work by 2nd quarter, 2013. Only Ullswater and Windermere completely have the full features of facilities compared to another vessel.

Table 7. Questionnaire Result

Customer's Perception	Weight		Carlisle	Ullswater	Windermere	Penrith	Kendal	Derwent
	36.63	100.00%	201.25	181.25	219.75	192.25	200.75	152.50

Vessel Specification	Weight		Carlisle	Ullswater	Windermere	Penrith	Kendal	Derwent
	62.00	100.00%	274.50	338.88	338.88	203.00	302.50	303.25
TOTAL ASSIGNED VALUE			475.75	520.13	558.63	395.25	503.25	455.75

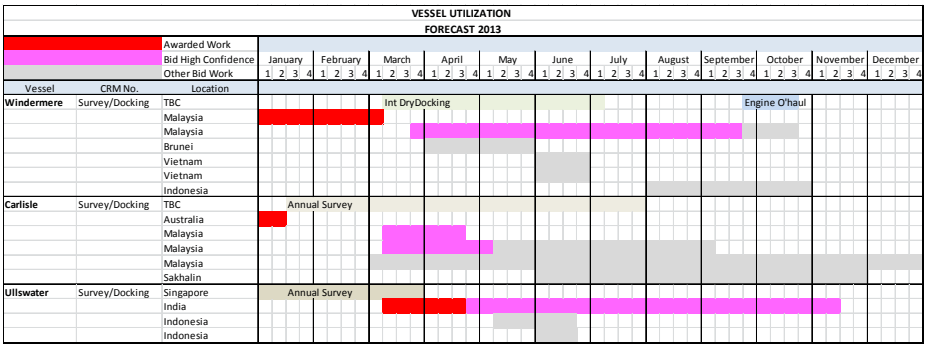
Refer to the questionnaire's result, Windermere achieves the highest point with 558.63 followed by Ullswater with 520.13 both vessels are having complete facilities which needed and suitable to do underwater services while Carlisle which is not equipped with Build in Saturation Diving achieve 475.50.

a. *The Internal Consideration*

Carlisle has finished the first job in Australia by second in January then headed to Singapore for the annual survey while waiting to get a short – term contract in Malaysia from the second week

of March up to first week of May 2013. The vessel to be re-flagged should be located near to Indonesian territory; the survey and inspection from Indonesian respective are needed during the process. Based on vessel availability, Carlisle was the suitable vessel to be re-flagged.

Table 8. Vessel Utilization



b. Management Preferable

Windermere is fully owned and operated by Hallin and relatively new which equipped with a refinement equipment from previous sister vessel Ullswater and led an operation cost more expensive rather than Ullswater which having a long term contract. Similar to Ullswater, Carlisle was having a long term contract but with subject to a purchase option in the sixth year of the charter and its beneficial for Hallin to wholly owned the vessel which can reduce the operating cost lower due to the depreciation of vessel value.

c. Company Future Plan

Most of the deepwater project was located in Europe Union; the suitable vessel to support offshore operation is Windermere and Ullswater which bigger than Carlisle which is more suitable for the Asian market in shallow water.

d. Competitive Market Price

For financial perspective, the basic price which is included bareboat charter, Seacom insurance, classification permit, technical management, marine crew for Windermere and Ullswater is higher than Carlisle. The basic rate directly will impacted to selling price known as daily rate for the vessel which is included basic rate, fuel cost, project cost, 3rd party, revenue for the company and tax. After final calculation include basic rate and the daily rate, the total selling price for Windermere is USD81, 775/day and Ullswater is USD79, 275/day while Carlisle is USD67, 963/day.

Table 9. Operating Cost

	Carlisle	Windermere	Ullswater	Penrith	Kendal	Derwent
Bareboat Charter	8,000	13,000	11,000	6,500	9,750	25,000
Insurance and Seacoms	2,000	2,000	2,000	1,000	2,000	3,000
Classification	500	500	500	300	300	500
Technical Management	1,750	2,000	2,000	1,000	1,000	3,000
Marine Crew	5,000	5,000	5,000	6,000	6,000	10,000
Basic Price	**17,250**	**22,500**	**20,500**	**14,800**	**19,050**	**41,500**
Fuel	10,000	15,000	15,000	13,000	8,000	22,500
Project Cost	19,000	19,000	19,000	13,000	13,000	15,000
3rd Party	3,000	3,000	3,000	3,500	3,500	5,000
Operating Cost	32,000	37,000	37,000	29,500	24,500	42,500
Revenue (20%)	16,250	19,300	18,900	14,760	13,610	25,300
Tax (5%)	2,463	2,975	2,875	2,215	2,178	4,200
Selling Price /day	USD 67,963	USD 81,775	USD 79,275	USD 61,275	USD 59,338	USD 113,500
Selling Price / day	USD 67,963	USD 81,775	USD 79,275	USD 61,275	USD 59,338	USD 113,500

Source: Hallin Marine, 2011

However, due to difficulties in judging the cost benefit trade-off, the researcher will determine using efficient frontier as the aggregate value of benefits has been plotted against the cost for each of the vessels (Goodwin & Wright:2004). The higher a vessel appears on the selling price/day and the further to the right on the on the total assigned value taken from questionnaire's feedback. The comparison between 3 (three) suitable vessels, such as Windermere, Ullswater and Carlisle will be explained further to get the suitable vessel in terms of selling cost.

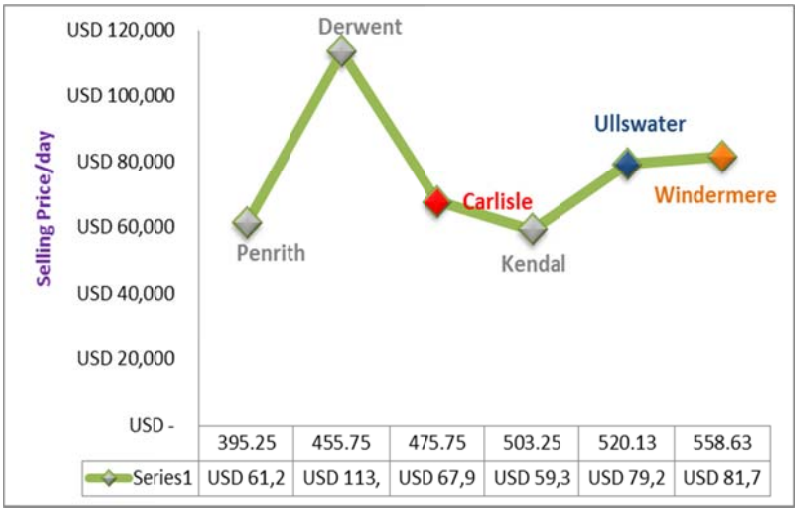


Figure 4.Efficient Frontier for Vessel Determination

Even though Carlisle, was achieved lower assigned value which determine the preferable vessel from respondents, the selling price/day was far below Windermere and Ullswater. In-terms of internal consideration, the decision to re-flagged Carlisle into Indonesian flagged vessel are preferable. It is clearly defined, that Carlisle is preferable in-terms of competitive selling price per day and sufficient equipped facilities relevant to conduct the underwater services.

Figure 5.SOV DP2 Carlisle

The Carlisle is a modern, DP2 subsea operations vessel operated by Hallin. The 76 meters Carlisle delivers flexible and reliable subsea operational capacity with boasts excellent deck space 700m2 and 126 berths and 50Tonnes SWL @ 15m offshore subsea crane. The DP2 SOV Carlisle is having a long-term of experiences working in Indonesian water to support subsea underwater services. The first project for Carlisle in the year 2009 with 4 (four) months contract to support PT. Transportasi Gas Indonesia for Offshore Pipeline Repair KP110 to KP113 (23km) Kuala Tungkai Panaran Project using portable saturation and air diving systems including C-ROV services with a total contract value US$8,

000,000. Followed in October 2009, Hallin receive a contract to conduct Diving Subsea Installation, Repairing and Maintenance Campaign Services 2009 – 2010 Program, the project owned by PT. Pertamina Hulu Energi ONWJ to do anodes installation, inspection & freespan rectification works with a total contract value US$33, 030,000.

4. Conclusion and Implementation Plan

A. Conclusion

The SOV DP2 Carlisle, was represent market needs of suitable vessels to support and perform underwater services in Indonesian water as it was mandatory regulation to re-flagged foreign flag vessel aligned with government regulation to implement the Cabotage principle by early 2013.

B. Implementation Plan

The implementation plan will take from the formal procedure for vessel re-flagging from INSA and relevant department including Department of Transportation, Department of Finance and Department of Trade. Re-flagging Procedures.

a. Re-flagging Process

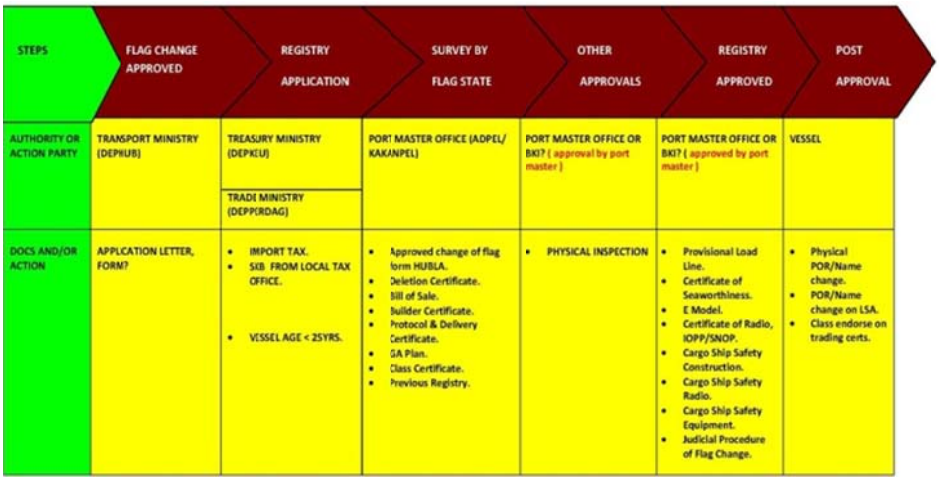


Figure 6. Official Procedures for Re-flagging Vessel

Source: Ben Line Agencies Indonesia, 2012

b. Time Frame of the Activities

The time frame of the re-flagging process which contributed by Ben Line Agency as in-house appointed shipping agency for Hallin.

Table 10. Re-flagging Schedule

STEPS	DETAILS PROCESS	DURATION	SCHEDULE START	SCHEDULE FINISH
FLAG CHANGE APPROVED - TRANSPORT MINISTRY		7	1/1/2013	9/1/2013
	Official Memorandum Application			
REGISTRY APPLICATION - TREASURY MINISTRY		5	10/1/2013	16/1/2013
	VAT Exemption Certificate Process			
REGISTRY APPLICATION - TRADE MINISTRY		10	17/1/2013	30/1/2013
	Notification on Import of Goods Process			
	Letter Recommendation - Trade Ministry			
SURVEY BY FLAG STATE - PORT MASTER OFFICE		30	31/1/2013	13/3/2013
	Re-flagging Process Application			
	Grosse Vessels Certificate			
OTHER APPROVALS - PORT MASTER OFFICE		3	14/3/2013	18/3/2013
	Physical Vessel Inspection			
REGISTRY APPROVED & POST APPROVAL		40	19/3/2013	13/5/2013
	Received Permanent Certificate			

Source: Ben Line Agencies Indonesia, 2012

Reference

SES, 2011. *Superior Energy Services Brochures* [online]. Available from: www.superiorenergy.com

HM, 2011. *Hallin Marine Brochures* [online]. Available from: www.hallinmarine.com

President of Republic of Indonesia, *Keputusan Presiden Republik Indonesia Nomor 5 Tahun 2006 Tentang Kebijakan Energi Nasional,* 2006

Ministry of transportation, *Peraturan Pemerintah Nomor 20 Tahun 2010, Tentang Transportasi Air*, 2010

Rudi, 2011. *Konvensi Nasional Perkapalan dan Transportasi*, Jakarta, INA: BPMigas, p.22

President of Republic of Indonesia, *Instruksi Presiden Republik Indonesia Nomor 5 Tahun 2005, Tentang Pemberdayaan Industri Pelayaran Nasional,* 2005

President of Republic of Indonesia, *Undang-UndangNomor 17 Tahun 2008, Tentang Pelayaran,* 2005

Ministry of Energy & Mineral Resources, *Hukum Minyak dan Gas Nomor 22 Tahun 2001, Tentang Minyak dan Gas Bumi,* 2001

Evita, 2011. *Konvensi Nasional Perkapalan dan Transportasi*, Jakarta, INA: BPMigas, p.18

BPMigas, *Peraturan Tata Kerja Nomor 007 Revisi 02 Tahun 2011, Tentang Proses Pengadaan Barang dan Jasa*, 2011

President of Republic of Indonesia, *Peraturan Pemerintah Nomor 22 Artikel 2 Tahun 2011, Tentang Perubahan Atas Peraturan Pemerintah Nomor 20 Tahun 2010 Tentang Angkutan di Perairan,* 2011

Kepner, C.,H., Tregoe, B., B., 1981. *The New Rational Manager*, Princeton, NJ, USA, p. 25-26

Goodwin, P & Wright G., 2004, Decision Analysis for Management Judgment, West Sussex, England:, John Wiley & Son, p30- 45

Ministry of Transporation, *Peraturan menteri Perhubungan Nomor 48 Tahun 2011, Tentang Penggunaan Kapal Asing*, 2011

Kiselbach, D., Thomson, Miller., 2011. *Steering Through Canadian Cabotage Laws* [online]. Available from: http://www.millerthomson.com/assets/files/article_attachments2/D-Kiselbach_Steering-Through-Canadian-Cabotage_Miller-Thomson.pdf, p. 1